



Welcome to DevCon 2017!

Richard Solomon
Vice President of PCI-SIG

Thank you to our Sponsors!



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Exhibitor Sponsors

- **Diodes Incorporated**
- **NEC Corporation**

- **Samtec, Inc.**
- **Tektronix, Inc.**

Track 1 – PCI-SIG® 4.0 Updates



Day 1

Track 1 - PCI Express®

9:30am - 10:30am	Session 1	PCIe 4.0 Electrical Update <i>Dan Froelich</i>
10:30am - 11:30am	Session 2	PCIe CEM 4.0 Previews <i>Dan Froelich</i>
11:30am - 1:00pm	Exhibit Area	<i>Lunch and Exhibit</i>
1:00pm - 2:00pm	Session 3	PCIe 4.0 PHY Logical <i>Debendra Das Sharma</i>
2:00pm - 3:00pm	Session 4	PCIe Compliance Updates <i>David Bouse</i>
3:00pm - 3:30pm	Exhibit Area	<i>PM Break and Exhibit</i>
3:30pm - 4:30pm	Session 5	PCIe 4.0 Protocol Update <i>Joe Cowan</i>
4:30pm - 5:30pm	Session 6	PCIe Panel Discussion
5:30pm - 8:00pm	Exhibit Area	<i>PCI-SIG 25th Anniversary Party</i>

- **Repeats on Day 2 (9am start)**

Track 2 – Introductory Topics



Day 1

Track 2 - PCI-SIG Architecture

9:30am - 10:30am	Session 1	PCI-SIG Architecture Overview <i>Richard Solomon</i>
10:30am - 11:30am	Session 2	PCIe Cable Update <i>Lee Mohrmann & Alex Haser</i>
11:30am - 1:00pm	Exhibit Area	<i>Lunch and Exhibit</i>
1:00pm - 2:00pm	Session 3	PCI Express Basics <i>Richard Solomon</i>
2:00pm - 3:00pm	Session 4	PCIe Electrical Basics <i>Dean Gonzales</i>
3:00pm - 3:30pm	Exhibit Area	<i>PM Break and Exhibit</i>
3:30pm - 4:30pm	Session 5	M.2 Updates <i>Manisha Nilange</i>
4:30pm - 5:30pm	Session 6	PCIe Panel Discussion
5:30pm - 8:00pm	Exhibit Area	<i>PCI-SIG 25th Anniversary Party</i>

- **Repeats on Day 2 (9am start)**

Track 3 – Members Implementation



Day 1

Track 3 - Members Implementation

9:30am - 10:30am	Session 1	PCIe Error Detection and Recovery Mechanisms <i>Gord Caruk</i>
10:30am - 11:30am	Session 2	PCI Express in Automotive Infotainment and ADAS Processors <i>Brad Cobb</i>
11:30am - 1:00pm	Exhibit Area	<i>Lunch and Exhibit</i>
1:00pm - 2:00pm	Session 3	Refclk Fanout Best Practices for 8GT/s and 16GT/s Systems <i>Greg Richmond</i>
2:00pm - 3:00pm	Session 4	In-system Debugging of PCIe Devices <i>Philippe Legros</i>
3:00pm - 3:30pm	Exhibit Area	<i>PM Break and Exhibit</i>
3:30pm - 4:30pm	Session 5	Performance Tuning PCIe Systems <i>Paul Cassidy</i>
4:30pm - 5:30pm	Session 6	PCIe Panel Discussion
5:30pm - 8:00pm	Exhibit Area	<i>PCI-SIG 25th Anniversary Party</i>

Track 3 – Members Implementation



Day 2

Track 3 - Members Implementation

9:00am - 10:00am	Session 7	Demystifying the PCIe Plug-Unplug <i>Alex Umansky</i>
10:00am - 10:30am	Exhibit Area	<i>AM Break and Exhibit</i>
10:30am - 11:30am	Session 8	Lessons Learned Bringing Up Early Adopter PCIe 4.0 Links <i>Richard Solomon</i>
11:30am - 12:30pm	Session 9	Multi-DMA Virtualization within Virtualized PCIe Systems <i>Stephane Hauradou</i>
12:30pm - 1:30pm	Exhibit Area	<i>Lunch and Exhibit</i>
1:30pm - 2:30pm	Session 10	New Challenges in Compliance Test and Debug for PCIe 16GT/s <i>Jim Dunford</i>
2:30pm - 3:30pm	Session 11	Verification Challenges for Retimers <i>Munish Goyal</i>

Track 4 – Members Implementation



Day 1

Track 4 - Members Implementation

9:30am - 10:30am	Session 1	Challenges and Techniques for Implementing Lane Margining <i>Gopi Krishnamurthy</i>
10:30am - 11:30am	Session 2	PCI Express Link Training and Protocol Debug Techniques <i>Gordon Getty</i>
11:30am - 1:00pm	Exhibit Area	<i>Lunch and Exhibit</i>
1:00pm - 2:00pm	Session 3	Jitter Measurements in the 0.7 4.0 PCI Express Base Specification <i>Savitha Muthanna</i>

Member Implementation



- **e-mailed Call for Papers ~4 months in advance**



PCI-SIG Developers Conference 2017

June 7-8, 2017

Santa Clara Convention Center
Santa Clara, California

Dear PCI Developers,

PCI-SIG® is pleased to issue a call for papers for presentation at the seventeenth annual [PCI-SIG Developers Conference 2017](#) in Santa Clara, June 7-8, 2017. Systems architects, designers, engineers, and engineering managers consistently rank this as the most valuable industry event.

Overview

This **free** event is designed to help our member companies develop and bring to market exciting new products utilizing PCI technology. The PCI-SIG Developers Conference 2017 continues that tradition by featuring the latest series of technical training sessions presented by PCI-SIG Workgroup Chairs and other PCI experts.

Call for Papers – Submit Now

PCI-SIG is pleased to once again offer its popular Members Implementation Experiences track. You will not want to miss this series of presentations as PCI-SIG members present unique tips, tricks and pitfalls learned during their implementation of PCI technology.

If you are interested in presenting as part of the Members Implementation Experiences track, review the online [Call for Papers instructions and milestones](#).

All abstracts must be submitted by March 17, 2017.

Member Implementation



- **Send in an abstract!**
 - 100 word summary
 - Ok to attach more detail
 - Ok to attach a presentation
 - No confidential material!
 - Not a datasheet or catalog or other marketing!
- **Get selected**
- **Meet milestones and deadlines**
- **Practice the presentation**
- **Present at DevCon**
- **Repeat for next year!**

Miscellaneous



- **Speakers and Staff in stylish Purple shirts**
- **Internet is provided**
 - Wireless Network Name: PCI-SIG
 - Password: devcon2017
 - Please only use one device per attendee and avoid using personal hot spots
- **Sponsor giveaways—announced during lunch on Thursday**
 - Diodes Incorporated – \$100 Amazon Gift Card
 - Cadence Design Systems – Amazon Echo Dot
 - Mentor, A Siemens Business – \$100 Amazon Gift Card
 - Synopsys – DMX Slot Car Racing Package w/ 4 cars
- **Presentations available for download**
 - <https://members.pcisig.com/wg/PCI-SIG/document/folder/645>

DevCon Mobile App



Download the “PCI-SIG Developers Conference” App:

1. Search for “PCI-SIG Developers Conference” from the Apple App Store/Google Play Store
2. Enter event code “devcon17” and select *Download Event*.
3. *Sign Up* for an account, enter information, select *Register Account*. Confirm account via emailed link.
4. Log-in.
 - a. Create/manage personalized agenda.
 - b. Opt to join the attendee list/exchange contact details with other attendees.
 - c. Take notes and fill in survey results.



Mobile Survey



- **Fill out your survey via mobile app or URL**
 - <https://event.crowdcompass.com/devcon-17>
 - Within the survey feature, hit the 'Next' button or swipe left to submit your feedback.

A screenshot of a mobile app interface titled "Rate this Session". The question is "Please rate speaker effectiveness on a scale of 1-5 (1 = poor, 5 = excellent)". Below the question, it says "Please select an answer:". There are five purple rectangular buttons labeled 1, 2, 3, 4, and 5. At the bottom, there is a "< Previous" button and a "Next >" button.

Verizon LTE 7:03 AM 96%

Rate this Session

Please rate speaker effectiveness on a scale of 1-5 (1 = poor, 5 = excellent)

Please select an answer:

1

2

3

4

5

< Previous Next >

A screenshot of a mobile app interface titled "Rate this Session". The question is "Please rate the quality of material in this session on a scale of 1-5 (1 = poor, 5 = excellent)". Below the question, it says "Please select an answer:". There are five purple rectangular buttons labeled 1, 2, 3, 4, and 5. The button for "5" has a white checkmark icon to its left. At the bottom, there is a "< Previous" button and a "Next >" button.

Verizon LTE 7:25 AM 92%

Rate this Session

Please rate the quality of material in this session on a scale of 1-5 (1 = poor, 5 = excellent)

Please select an answer:

1

2

3

4

✓ 5

< Previous Next >

PCI-SIG 25th Anniversary Party & Trivia Dinner



- **You are invited to the 25th Anniversary Party tonight from 5:30 p.m. – 8:00 p.m.**
- **Appetizers and refreshments will be provided at 5:30 p.m.**
 - Use this time to gather key clues to assist your team in answering the night's trivia questions.
 - Clues will be distributed by sponsors, so be sure to stop by their booths.



PCI-SIG 25th Anniversary Party & Trivia Dinner



- **The Trivia Dinner will kick-off promptly at 7:00 p.m. to test attendees' knowledge of PCI technology.**
- **Prizes:**
 - We'll be giving away 10 FitBit Blazes to the winning table!
 - Raffle drawing for a Drone as a participation prize.



Upcoming Events



PCI-SIG Compliance Workshop #102

August 1-4, 2017

Embassy Suites Silicon Valley

Milpitas, California

PCI-SIG Developers Conference Israel 2017

September 18-19, 2017

Hilton Tel Aviv

Tel Aviv, Israel

PCI-SIG Developers Conference Asia-Pacific Tour 2017

Tokyo - October 12, 2017

Taipei - October 16-17, 2017

PCI-SIG Compliance Workshop #103

October 17-20, 2017

The Westin Taipei

Taipei, Taiwan



PCI-SIG®

2017 Annual Meeting of Members

Al Yanes
Chairman of the Board of Directors

Results of the Board Election



○ 2017-2018 PCI-SIG Board of Directors

- Gord Caruk
- Greg Casey
- Mike Krause
- Al Yanes
- Debendra Das Sharma
- Mehul Shah
- Michael Diamond
- Rick Wietfeldt
- Richard Solomon



2017-2018 PCI-SIG Officers



- **President and Chairman of the Board**
 - Al Yanes – IBM
- **Vice President**
 - Richard Solomon – Synopsys
- **Secretary**
 - Richard Solomon – Synopsys
- **Treasurer**
 - Greg Casey – Dell
- **Executive Director**
 - Reen Presnell – VTM

Membership Overview



- **Total Members: 730***
- **Membership Activity YTD:**
 - 30 Companies expired
 - 251 Companies renewed
 - 22 Companies joined
 - 267 Members up for renewal in next 4 months (May, June, July, August)

***The following data presented is from March 1 – April 30, 2017 unless otherwise noted.**

Current Cash Balances



ASSETS

Cash

Wells Fargo Checking Account	\$1,978,723.35
Wells Fargo Savings Account	\$1,726,336.55

Total Ready Cash	\$3,705,059.90
-------------------------	-----------------------

Other Assets

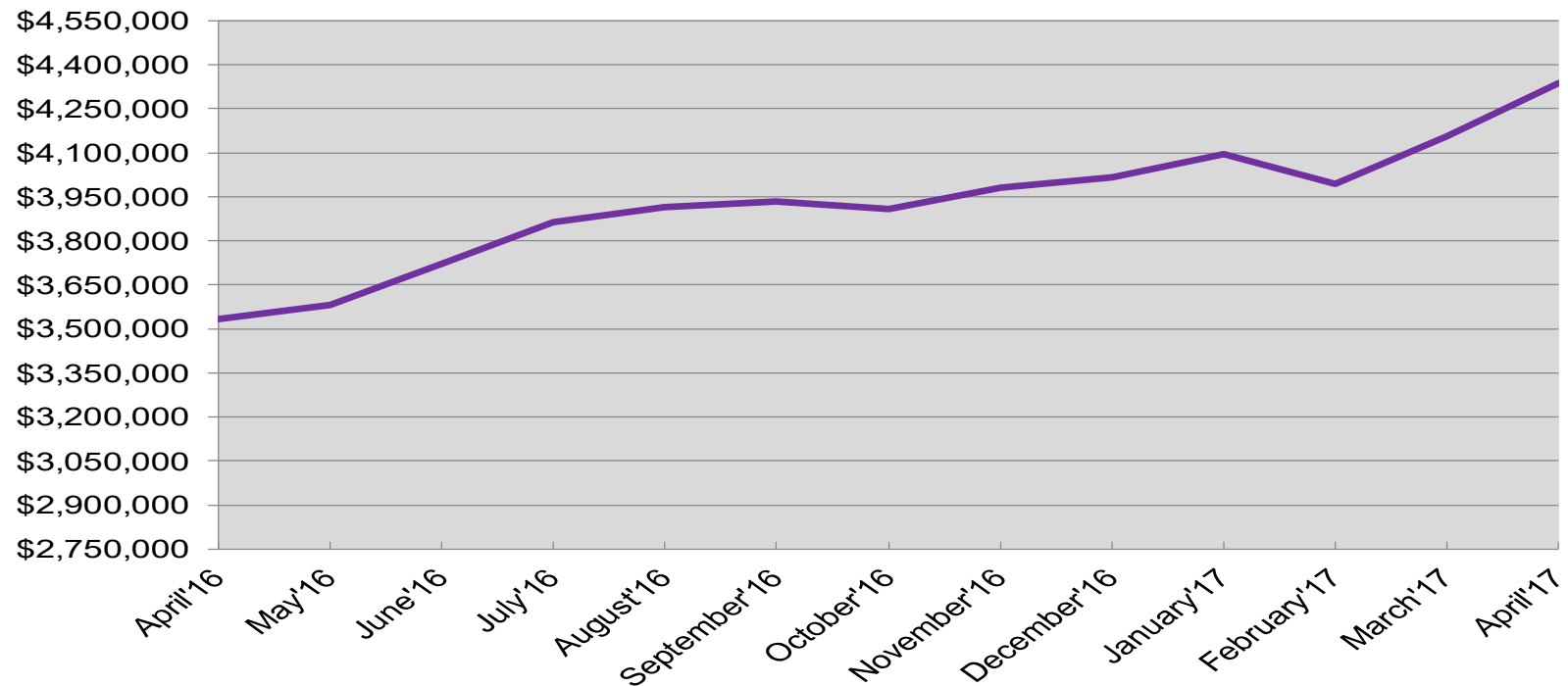
Investments	\$631,865.02
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Total Other Assets	\$ 631,865.02
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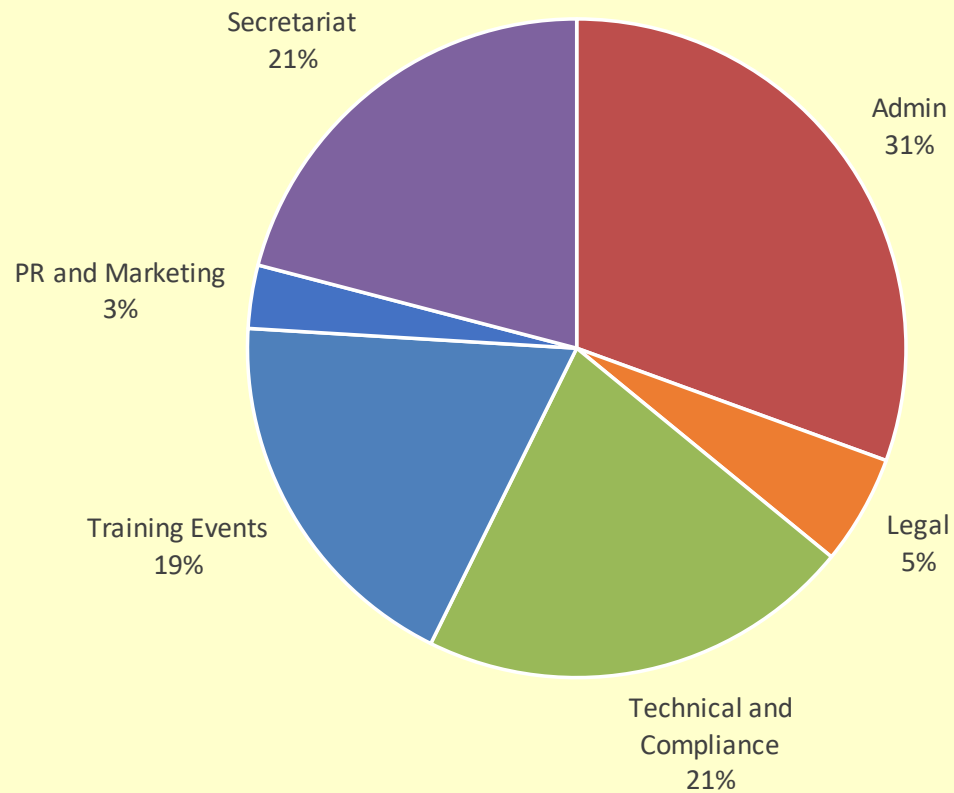
Total Available Assets	\$4,336,924.92
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*** All information as of April 30, 2017**

Cash Balances per Month – Last 12 Months



Last 12 Month Expenses as a Percent



PCI Express 4.0



PCI-SIG continues its solid reputation of delivering **low cost, high-performance, low-power specifications** for **multiple applications and markets.**

- **PCI Express 4.0 Specification – (16GT/S)**
 - Feature complete Revision 0.9 released for final IP review
 - Includes new performance enhancements
 - Maintains position as the interconnect of choice for the expansive storage market and the backbone for the fast growing cloud ecosystem

Thank You to Our Tech Writers!



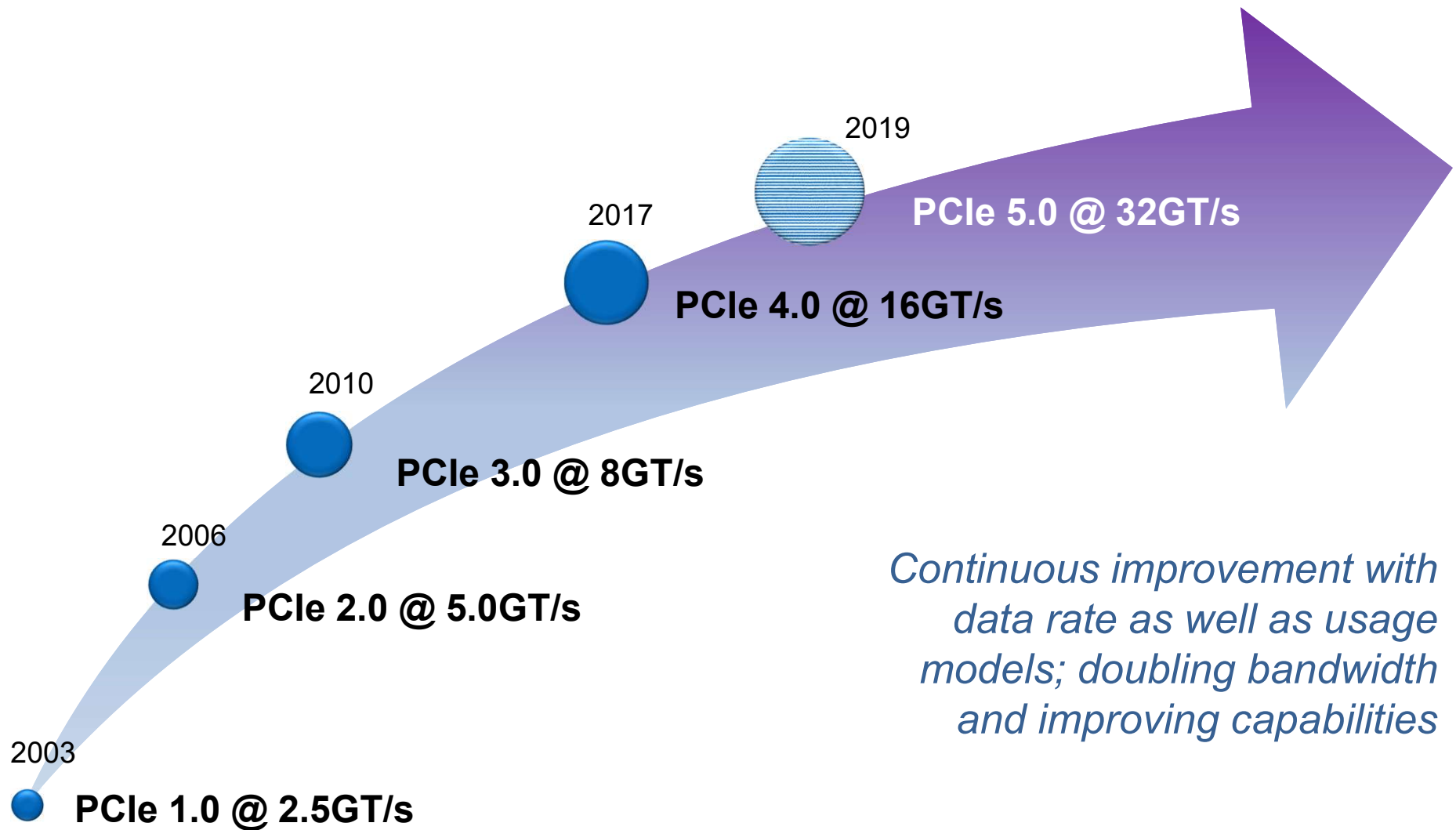
- **Huge thank you to the Tech Writing team's dedicated efforts to PCI Express 4.0!**
 - Steve Glaser
 - Teresa Saffaie
 - Vinita Singhal

PCI Express – Future



- **PCI Express 5.0 Specification with 32GT/s Bandwidth**
 - Revision 0.3 has already been delivered to PCI-SIG members
 - Applications such as artificial intelligence, machine learning, gaming, visual computing, storage and networking
 - High-end networking solutions (i.e. 400Gb Ethernet and dual 200Gb/s InfiniBand solutions)
 - Accelerator and GPU attachments for high-bandwidth solutions
 - Constricted form factor applications that cannot increase width and need higher frequency to achieve performance

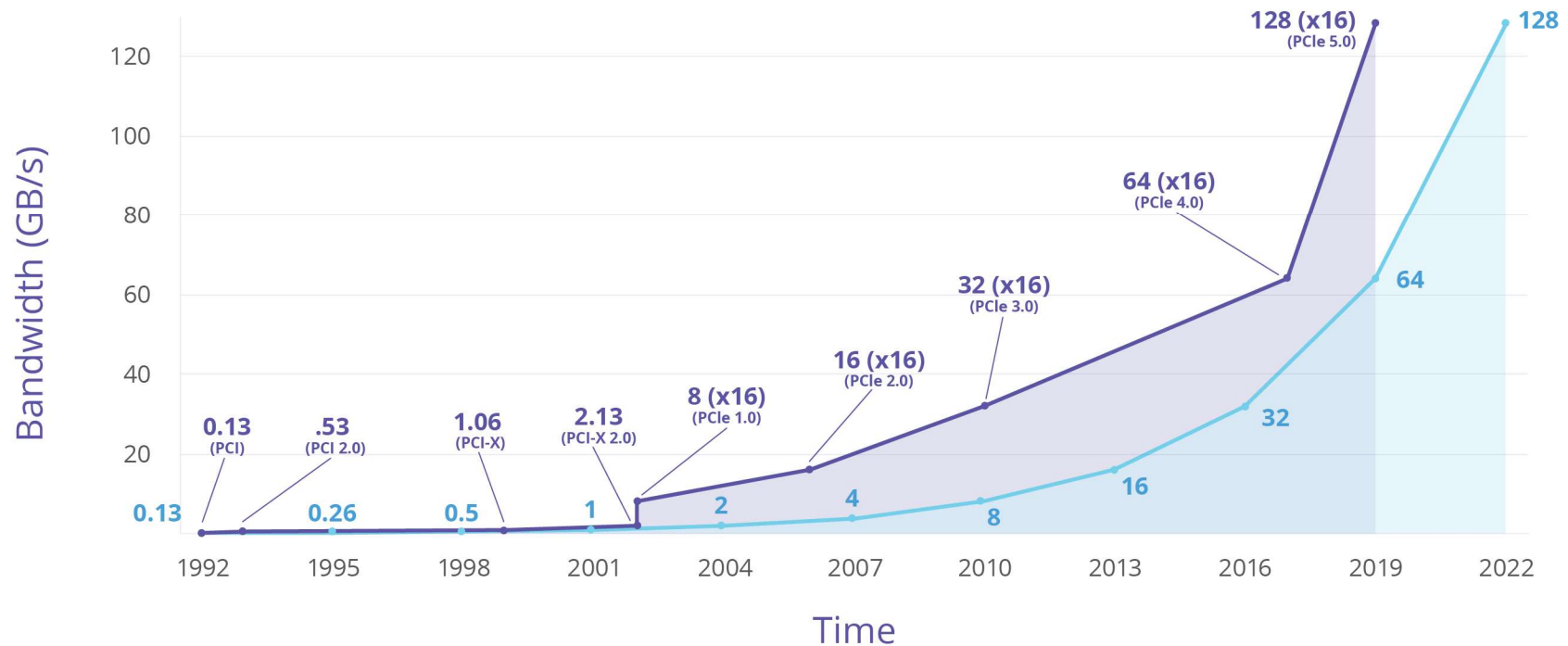
PCIe® Roadmap



PCI-SIG History



 **I/O BANDWIDTH DOUBLES**
Every 3 Years



PCI-SIG BANDWIDTH 1992-2019

— Actual Bandwidth (GB/S) — I/O Bandwidth Doubles Every Three Years



Q & A

Disclaimer



- **This presentation contains forward-looking statements that involve risks, uncertainties and assumptions. If any of these risks or uncertainties materializes or any of these assumptions proves incorrect, future developments could be markedly different. Any forward-looking statements made are subject to change, and all initiatives are contingent upon final approval by the PCI-SIG Board of Directors;**
- **All statements other than statements of historical fact are statements that should be deemed forward-looking statements;**
- **PCI-SIG assumes no obligation for actions taken with respect to forward-looking statements.**

Purpose of the PCI-SIG



- **The Corporation and its Members are committed to monitoring and enhancing the development of the Peripheral Component Interconnect ("PCI"). The Corporation was formed to achieve this purpose by among other matters (1) striving for compatibility of all PCI specification revisions or addenda; (2) maintaining the PCI architecture as a simple, easy to implement, stable technology in the spirit of its design; (3) contributing to the establishment of PCI as an industry standard; and (4) maintaining the technical longevity of the PCI architecture. The Corporation may make or propose technical standards and interface with other groups or bodies developing such standards.**

